Claims

We Claim:

1 A wavelength-selective optical transmission system comprising:

a first waveguide for transmitting a multiplexed optical signal therethrough;

a second waveguide coupled to said first waveguide wherein a least one of said first and second waveguides having a set of wavelength-selective Bragg gratings disposed near a coupling section between said first and second waveguides wherein one of said first and second waveguides having an aspect ratio defined by a thickness divided by a width is no greater than 0.75.

2 The wavelength-selective optical transmission system of claim 1 wherein:

said first waveguide having a larger cross sectional area than said second waveguide.

3 The wavelength-selective optical transmission system of claim 1 wherein:

said first waveguide having a smaller cross sectional area than said second waveguide.

4 The wavelength-selective optical transmission system of claim 1 wherein:

said first waveguide having a rectangular cross sectional area.

5 The wavelength-selective optical transmission system of claim 1 wherein:

said second waveguide having a square cross sectional area.

6 The wavelength-selective optical transmission system of claim 1 wherein:

said first waveguide having a non-square cross sectional area with a width W and thickness T where and an aspect ratio T/W ranging from 0.8 to 0.01 and said second waveguide having a substantially square cross sectional area having a width and thickness equal to WT and WT is equal to or greater than T.

7 The wavelength-selective optical transmission system of claim 1 wherein:

said first waveguide and said second waveguide are composed of a same material and having two different shapes of cross sectional areas.

8 The wavelength-selective optical transmission system of claim 1 wherein:

said first waveguide and said second waveguide having two different optical propagation constants.

9 The wavelength-selective optical transmission system of claim 1 wherein:

said Bragg gratings disposed on said first waveguide.

10 The wavelength-selective optical transmission system of claim 1 wherein:

said Bragg gratings disposed on said second waveguide.

11 The wavelength-selective optical transmission system of claim 1 wherein:

said Bragg gratings disposed on said first and second waveguides.

12 The wavelength-selective optical transmission system of claim 1 wherein:

said Bragg gratings disposed on a cladding surrounding said first waveguide.

13 The wavelength-selective optical transmission system of claim 1 wherein:

said Bragg gratings disposed on a cladding surrounding said second waveguide.

14 The wavelength-selective optical transmission system of claim 1 wherein:

said Bragg gratings disposed on a cladding in the gap between said first and second waveguides.

15 A method for configuring a wavelength-selective optical transmission system comprising:

transmitting a multiplexed optical signal through a first waveguide and coupling a second waveguide to said first waveguide; and

forming a set of wavelength-selective Bragg gratings on a least one of said first and second waveguides near a coupling section between said first and second waveguides and configuring one of said first and second waveguides having an aspect ratio defined by a thickness divided by a width is no greater than 0.75.

16 The method of claim 15 wherein:

said step of coupling said second waveguide to said first waveguide further comprising a step of configuring said first waveguide having a larger cross sectional area than said second waveguide.

17 The method of claim 15 wherein:

said step of coupling said second waveguide to said first waveguide further comprising a step of configuring said first waveguide having a smaller cross sectional area than said second waveguide.

18 The method of claim 15 wherein:

said step of coupling said second waveguide to said first waveguide further comprising a step of configuring said first waveguide with a rectangular cross sectional area.

19 The method of claim 15 wherein:

said step of coupling said second waveguide to said first waveguide further comprising a step of configuring said first waveguide with a square cross sectional area.

20 The method of claim 15 wherein:

said step of coupling said second waveguide to said first waveguide further comprising a step of configuring said first waveguide having a non-square cross sectional area with a width W and thickness T where and an aspect ratio T/W ranging from 0.8 to 0.01 and said second waveguide having a substantially square cross sectional area having a width and thickness equal to WT and WT is equal to or greater than T.

21 The method of claim 15 wherein:

said step of coupling said second waveguide to said first waveguide further comprising a step of configuring said first waveguide and said second waveguide composed of a same material and having two different shapes of cross sectional areas.

22 The method of claim 15 wherein:

said step of coupling said second waveguide to said first waveguide further comprising a step of configuring said first waveguide and said second waveguide having two different optical propagation constants.

23 The method of claim 15 wherein:

said step of forming wavelength-selective Bragg gratings on a least one of said first and second waveguides further comprising a step of forming said set of Bragg gratings on said first waveguide.

24 The method of claim 15 wherein:

said step of forming wavelength-selective Bragg gratings on a least one of said first and second waveguides further comprising a step of forming said set of Bragg gratings on said second waveguide.

25 The method of claim 15 wherein:

said step of forming wavelength-selective Bragg gratings on a least one of said first and second waveguides further comprising a step of forming said set of Bragg gratings on said first and second waveguides.

26 The method of claim 15 wherein:

said step of forming wavelength-selective Bragg gratings on a least one of said first and second waveguides further comprising a step of forming said set of Bragg gratings on a cladding surrounding said first waveguide.

27 The method of claim 15 wherein:

said step of forming wavelength-selective Bragg gratings on a least one of said first and second waveguides further comprising a step of forming said set of Bragg gratings on a cladding surrounding said second waveguide.

28 The method of claim 15 wherein:

said step of forming wavelength-selective Bragg gratings on a least one of said first and second waveguides further comprising a step of forming said set of Bragg gratings on a cladding in the gap between said first and second waveguides.

29 A wavelength-selective optical transmission system comprising:

a first waveguide coupled to a second waveguide through a set of Bragg gratings wherein said first and second waveguides having different aspect ratios defined by a waveguide thickness divided by a waveguide width.

30 A wavelength-selective optical transmission system of claim 29 wherein:

One of said first and second waveguides having an aspect ratio equal to or less than 0.75.